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MEDIUM-MU TWIN TRIODE

9-PIN MINIATURE TYPE

For "on-off" control applications involving long periods of operation under cutoff conditions.

GENERAL DATA

Electrical:

Heater, for Unipotential Cathodes:

	Series	Parallel	
Heater arrangement	Series	Parallel	
Voltage (AC or DC)	12.6 ± 5%	6.3 ± 5%	volts
Current	0.225	0.45	amp

Direct Interelectrode Capacitances (Approx.):*

Grid to plate (Each unit)	3.0	μμf
Grid to cathode and heater (Each unit)	3.8	μμf
Plate to cathode and heater (Unit No.1)	0.5	μμf
Plate to cathode and heater (Unit No.2)	0.38	μμf
Plate of unit No.1 to plate of unit No.2	0.5	μμf

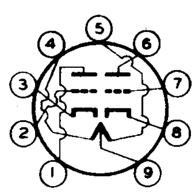
Characteristics, Class A_1 Amplifier (Each Unit):

Plate Supply Voltage	150	volts
Cathode-Bias Resistor	220	ohms
Amplification Factor	47	
Plate Resistance	7250	ohms
Transconductance	6500	μmhos
Plate Current	8.2	ma
Grid Voltage (Approx.) for plate current of 150 μamp	-5.5	volts

Mechanical:

Mounting Position . . . . Any
Maximum Overall Length . . . . 2-3/16"
Maximum Seated Length . . . . 1-15/16"
Length from Base Seat to Bulb Top (Excluding tip) . . . . 1-9/16" ± 3/32"
Maximum Diameter . . . . 7/8"
Bulb T-6-1/2
Base . . . . Small-Button Noval 9-Pin (JETEC No.E9-1)
Basing Designation for BOTTOM VIEW 9A

Pin 1 - Plate of Unit No.2
Pin 2 - Grid of Unit No.2
Pin 3 - Cathode of Unit No.2
Pin 4,9 - Heater of Unit No.2
Pin 5,9 - Heater of Unit No.1



Pin 6 - Plate of Unit No.1
Pin 7 - Grid of Unit No.1
Pin 8 - Cathode of Unit No.1
Pin 9 - Heater Mid-Tap

* Without external shield.

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FREQUENCY DIVIDER IN COMPUTER SERVICE and "ON-OFF" CONTROL SERVICE

Values are for Each Unit

Maximum Ratings, *Absolute Values*:

PLATE VOLTAGE	330 max.	volt
GRID VOLTAGE:		
Negative bias value	150 max.	volts
PLATE DISSIPATION	2.4 max.	watts
Total for both units	4.4 max.	watts
DC CATHODE CURRENT	16.5 max.	ma
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode	200# max.	volts
Heater positive with respect to cathode	200# max.	volts
BULB TEMPERATURE (At hottest point on bulb surface)	165 max.	°C

Typical Operation in Computer Service:

	Cutoff Condition	*Conduction Condition*	
Plate Supply Voltage	150	150	volts
Plate Load Resistor	7200	7200	ohms
Plate Current	-	10.5	ma
Grid Voltage (Approx.) for grid current of 140 μamp	-	less than 1 volt	
Grid Voltage (Approx.) for plate current of 150 μamp	-5.5	-	volts
Difference in Grid Voltage Between Units (For plate current of 150 μamp per unit)	1.5	-	volts

Maximum Circuit Values:

Grid-Circuit Resistance:		
For fixed-bias operation	0.1 max.	megohm
For cathode-bias operation	0.5 max.	megohm

CHARACTERISTICS RANGE VALUES FOR EQUIPMENT DESIGN

	Note	*Min.*	*Max.*	
Heater Current	1	0.207	0.243	amp
Amplification Factor (Each Unit)	1,2	39	55	
Grid Voltage for plate current of 150 μamp (Each Unit)	1,3	-	-7.5	volts
Difference in Grid Voltage Between Units (For plate current of 150 μamp per unit)	-	-	1.5	volt
Plate Current 1 (Each Unit)	1,2	6	10.4	ma

The dc component must not exceed 100 volts.

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	Note	Min.	Max.	
Plate Current 2 (Each Unit) . .	1,4	9.75	–	ma
Reverse Grid Current (Each Unit)	1,5	–	1	µamp
Heater-Cathode Leakage Current:				
Heater negative with respect to cathode	1,6	–	20	µamp
Heater positive with respect to cathode	1,6	–	20	µamp
Transconductance	1,2	5100	7900	µmhos

Note 1: With 12.6 volts ac or dc on heater (series connected).

Note 2: With plate supply voltage of 150 volts and cathode resistor for each cathode of 220 ohms adequately bypassed for a signal frequency of 60 cps. Each unit tested separately. Unit not under test biased to cutoff.

Note 3: With plate supply voltage of 150 volts, grid supply voltage adjusted to give dc plate current of 150 microamperes, and plate load resistor of 7200 ohms. Each unit tested separately. Unit not under test biased to cutoff.

Note 4: With plate supply voltage of 150 volts, grid supply voltage adjusted to give dc grid current of 140 microamperes, and plate load resistor of 7200 ohms. Each unit tested separately. Unit not under test biased to cutoff.

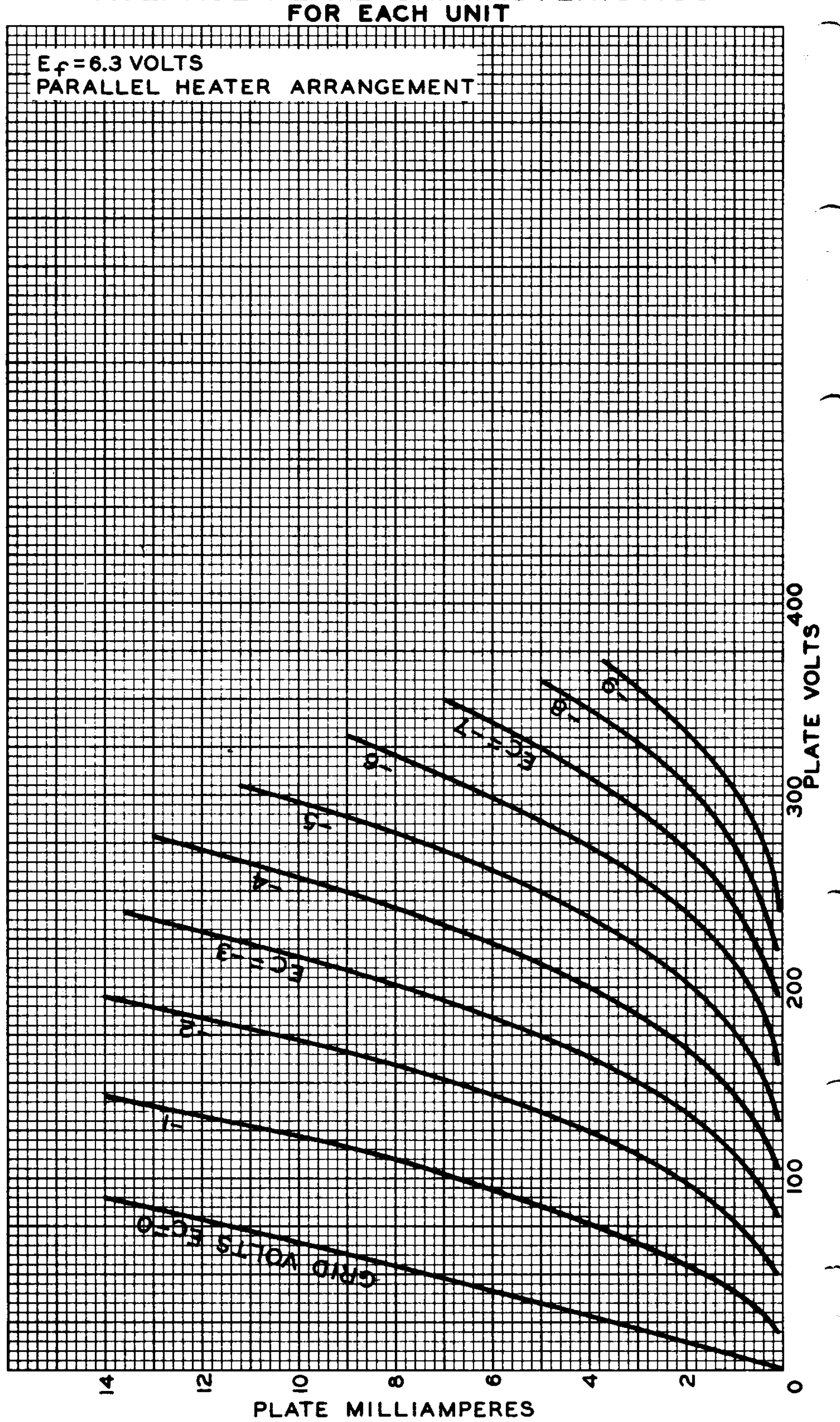
Note 5: With plate supply voltage of 150 volts, cathode resistor for each cathode of 220 ohms, and grid-circuit resistance of 0.5 megohm. Each unit tested separately. Unit not under test biased to cutoff.

Note 6: With 100 volts dc between heater and cathode and units connected in parallel.

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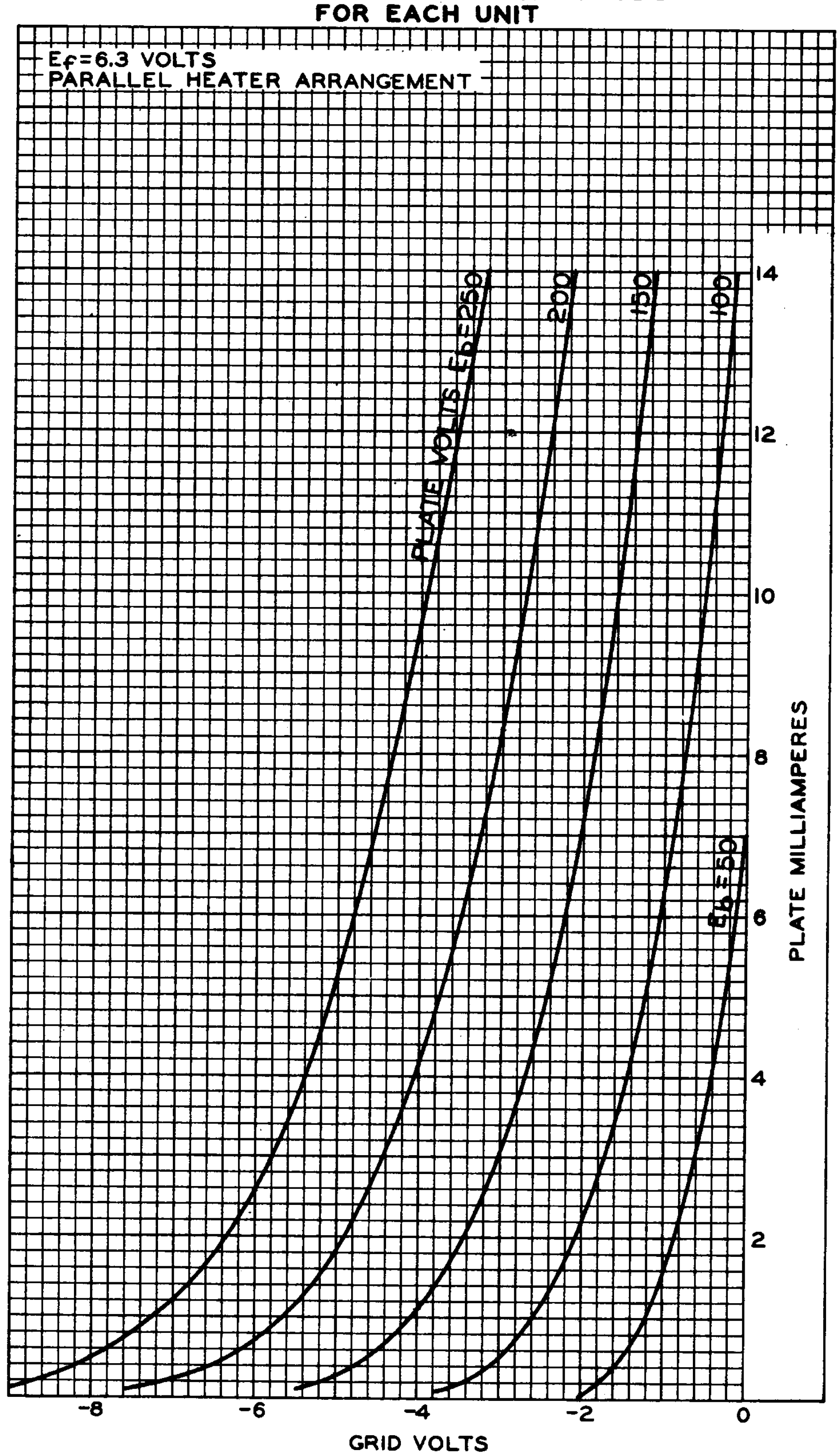
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AVERAGE PLATE CHARACTERISTICS
FOR EACH UNIT



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AVERAGE CHARACTERISTICS
FOR EACH UNIT



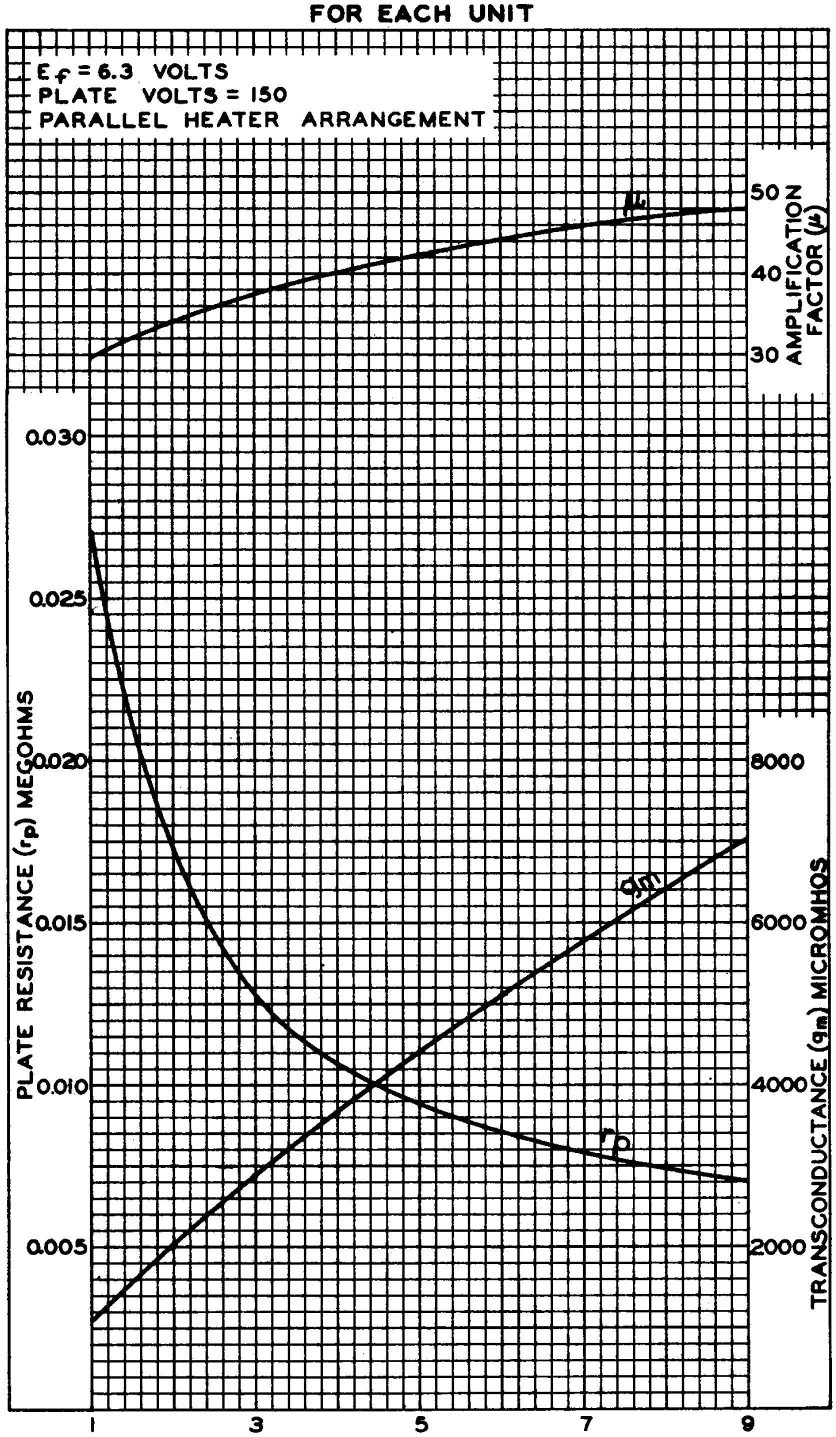
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AVERAGE CHARACTERISTICS
FOR EACH UNIT



MAR. 8, 1954

TUBE DIVISION
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

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